

What is claimed is:

1. A method for increasing the hybridization rate of nucleic acids in a nucleic acid assay,
said method comprising:
 - 5 a) attaching probe nucleic acid molecules of known sequence to a solid support;
 - b) labeling nucleic acid target molecules with paramagnetic labels;
 - c) contacting the labeled target molecules with the solid support;
 - d) activating a magnetic field whereby the labeled molecules are attracted to the
solid support;
 - 10 e) washing the support and inverting the polarity of the magnetic field to remove any
unbound or nonspecifically bound molecules; and
 - f) detecting the hybridized target nucleic acid molecules.
2. A method of claim 1 in which the solid support is selected from the group consisting of
15 silicon, glass, and metals.
3. A method of claim 2 in which the solid support is or is coated with a metal selected from
the group consisting of silver, copper, gold, platinum (II), mercury, mercury (II),
thallium, cadmium (II), platinum (IV) and palladium (II).
- 20 3. A method of claim 1 in which the paramagnetic labels comprise superparamagnetic
particles, having a diameter of from about 1 to about 10 nanometers.
4. A method of claim 1 in which the paramagnetic labels comprise paramagnetic
25 porphyrins.

5. A method of claim 1 in which the paramagnetic labels are attached to the nucleic acid molecules using cleavable conjugating molecules.
- 5 6. A method of claim 1 in which the nucleic acid molecules are oligonucleotides, genomic DNA, cDNA, RNA or fragments thereof.
7. A method of claim 1 in which at least one member of a complementary pair is labeled with a fluorescent detection molecule.
- 10 8. A method for increasing the hybridization rate of nucleic acids in a nucleic acid assay, said method comprising:
- a) attaching nucleic acid target molecules to a solid support;
 - b) labeling nucleic acid molecules of known sequence with paramagnetic labels;
 - c) contacting the support with the labeled nucleic acid molecules of known
15 sequence;
 - d) activating a magnetic field whereby the labeled molecules are attracted to the solid support;
 - e) washing the support and inverting the polarity of the magnetic field to remove any unbound or nonspecifically bound molecules; and
 - 20 f) detecting the hybridized target nucleic acid molecules.
9. A method of claim 9 in which the solid support is selected from the group consisting of silicon, glass, and metals.
- 25 11. A method of claim 10 in which the solid support is or is coated with a metal selected from the group consisting of silver, copper, gold, platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II).

12. A method of claim 9 in which the paramagnetic labels comprise superparamagnetic particles, having a diameter of from about 1 to about 10 nanometers.
- 5 13. A method of claim 9 in which the paramagnetic labels comprise paramagnetic porphyrins.
14. A method of claim 9 in which the paramagnetic labels are attached to the nucleic acid molecules using cleavable conjugating molecules.
- 10 15. A method of claim 9 in which the nucleic acid molecules are oligonucleotides, genomic DNA, cDNA, RNA or fragments thereof.
- 15 16. A method of claim 9 in which at least one member of a complementary pair is labeled with a fluorescent detection molecule.